UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,371	03/04/2002	Dawei Huang	HUANG 2-1 (58655)	5175

46290	7590	11/13/2006

WILLIAMS, MORGAN & AMERSON
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

EXAMINER
TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 06 October 2006.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-11,13-18 and 20-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17,18 and 20-22* is/are allowed.

6)☒ Claim(s) *1,2,4,5,8-11,13,15 and 16* is/are rejected.

7)☒ Claim(s) *6,7 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 November 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The Applicant's arguments filed 10/06/2006 have been fully considered but they are not persuasive.

The Applicant contends (2nd paragraph page 2 of Applicant's response), "The Examiner alleges that the term "determined by" renders the claims indefinite because this term does not set forth a specific relationship between the periodicity of the symbols and the constraint length of the encoder. In particular, the Examiner alleges that the periodicity can be "any value under the sun." Applicants respectfully submit that the Examiner is interpreting the phrase "determined by" to mean precisely its opposite, i.e. "not determined by." Applicants respectfully disagree with the Examiner's interpretation of the terminology of these claims and submit that the terminology of the claims should be given their plain meaning. In the present case, Applicants submit that the phrase "determined by" should be interpreted to mean that the value of the periodicity cannot have "any value under the sun." To the contrary, the periodicity may only have values that are in some sense "determined by" the constraint length".

Claim 1 recites, "the known symbols being inserted with a periodicity determined by constraint length of an encoder".

The Examiner asserts that constraint length K is a constant integer and periodicity P is also an constant integer. All state machines and more explicitly encoder based on state

machines such as convolutional encoders have a constraint length K and any periodic signal has a period P. A relationship always P=R(K) always exits between to constants for example P = K + t. For that reason any convolutional encoder with any arbitrary constraint length K and any periodic signal with any arbitrary period P will satisfy a functional relationship between P and K, in particular, they will satisfy the relationship P = K + t for a specific value of t. The equation P – K = t is equivalent to the equation P = K + t which explicitly mathematically demonstrates that knowing periodicity P and constraint length K in advance to calculate t is entirely equivalent to knowing constraint length K and t in advance to calculate periodicity P. It also show that the following two statements are equivalent "the known symbols being inserted with a periodicity determined by constraint length of an encoder" and --the known symbols being inserted with a periodicity into data from and encoder with a given constraint length K--. Furthermore; any two integers P and K will satisfy the relationship P = K + t hence; the limitation "the known symbols being inserted with a periodicity determined by constraint length of an encoder" basically says that the constraint length K and the periodicity P can take on any two integer values since any two integer values will satisfy the equation P = K + t for some t.

In subsequent arguments (3rd paragraph page 2 of Applicant's response) "Once a value of the number (t) has been selected, the periodicity is constrained to a value equal to the selected value of the number plus the constraint".

The Examiner would like to point out that likewise once constraint length K and the periodicity P are known then t is known and the periodicity P is still constrained to a value equal to the selected value of the number t plus the constraint length K. The Examiner asserts that regardless of how the Applicant argues it, the periodicity P and the constraint length K can take on any integer values under the sun and still satisfy the limitations in claim 1.

The Applicant contends, "simply inserting zero bits in an alternating manner, as described in Simanapalli, does not constitute inserting bits into a digital data sequence with a periodicity determined by a constraint length of an encoder because the periodicity of the inserted bits is selected to be 2 regardless of the value of the constraint length, which in this case happens to be six. Accordingly, Applicants respectfully submit that Simanapalli is completely silent with regard to inserting bits into a digital data sequence with a periodicity determined by a constraint length of an encoder".

The Examiner disagrees and asserts that Simanapalli teaches inserting symbols into a sequence with a periodicity P and teaches a convolutional encoder with constraint length K, which satisfy the relationship P=K+t for some fixed value t. As pointed out above, the equation $P - K = t$ is equivalent to the equation $P = K + t$ which explicitly mathematically demonstrates that knowing periodicity P and constraint length K in advance to calculate t is entirely equivalent to knowing constraint length K and t in advance to calculate periodicity P.

The Examiner disagrees with the applicant and maintains all rejections of claims 1, 2, 4-11, 13-18 and 20-22. All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 1, 2, 4-11, 13-18 and 20-22 are not patentably distinct or non-obvious over the prior art of record in view of the references, Simanapalli; Sivanand (US 6081921 A) in view of Kato; Osamu et al. (US 5436918 A, hereafter referred to as Kato) as applied in the last office action, filed 03/16/2006. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1, 2, 4-11 and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

See the Non-Final Action filed 07/07/2006 for detailed action of prior rejections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1, 2, 4, 5, 10, 11 and 13 are rejected under 35 U.S.C. 102(b) as being

anticipated by Simanapalli; Sivanand (US 6081921 A).

See the Final Action filed 03/16/2006 for detailed action of prior rejections.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.,* 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

4.   Claims 8, 9, 15 and 16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Simanapalli; Sivanand (US 6081921 A) in view of Kato; Osamu et al.

(US 5436918 A, hereafter referred to as Kato).

See the Final Action filed 03/16/2006 for detailed action of prior rejections.

Allowable Subject Matter

5.   Claims 17, 18 and 20-22 are allowed.

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
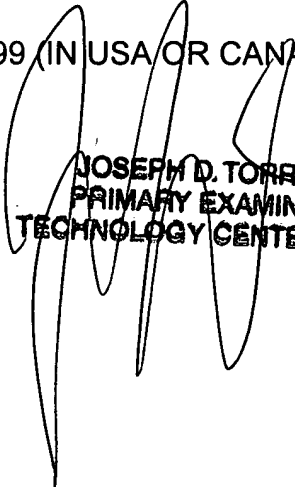

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joseph D. Torres whose telephone number is (571)

272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JOSEPH D. TORRES
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133